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to which a pad of drawing-paper is fastened, and a wooden T-square and triangles of suitable size. The draughtsman or architect fastens the piece of paper on which he is working to his drawing-board by means of thumb-tacks; but this method has proved both expensive and annoying in the primary grades of schools, so the scheme of the pad has been devised. This pad is slightly glued to the board at each corner, and the sheets com-

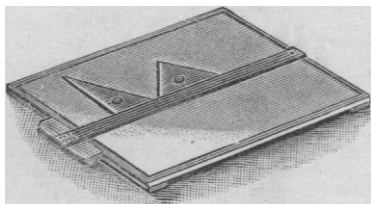


FIG. 1.

posing it are torn off one by one as fast as they are used. The pads are sold separately from the boards, and can be renewed as often as circumstances require. The T-square is a substantial instrument, having a blade fourteen inches long. The head is adapted for use with the pad, as well as the single sheet, being unusually thick, so as to allow it to have a hold on the board when the pad is of full thickness. The two triangles, commonly

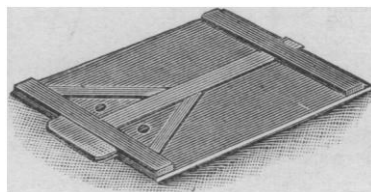


FIG. 2.

called the 45° and 60° triangles, include the standard angles, 90°, 45°, 60°, and 30°.

As a convenience in keeping the several pieces of the set together, the back of the board is provided with grooved cleats, and the cross-cleats at the two ends of the board are slotted to receive the tongue of the T-square, as shown in Fig. 2.

A few sample boards were placed in the schools of Springfield, Mass., by way of experiment, three years ago, and since that time their use has spread to such cities as Providence, R.I.; Hartford,

Conn.; Harrisburg, Penn.; Cambridge, Chelsea, Quincy, Brookline, Mass.; Pawtucket, R.I.; and various other places; while the demand is constantly increasing.

A kit of larger size, called the No. 2 kit, double the size of the other, and without pads, is also made, intended for the use of advanced pupils and draughtsmen.

In connection with these instruments, the manufacturers, the Milton Bradley Company of Springfield, Mass., have just put on the market a support for models used in drawing (Fig. 3). It is so made that it may be attached to the ordinary school-desk, and removed at pleasure. Now that form-study has become a legitimate branch of every well-devised school course, there is a necessity that the pupils' desks shall be properly equipped for

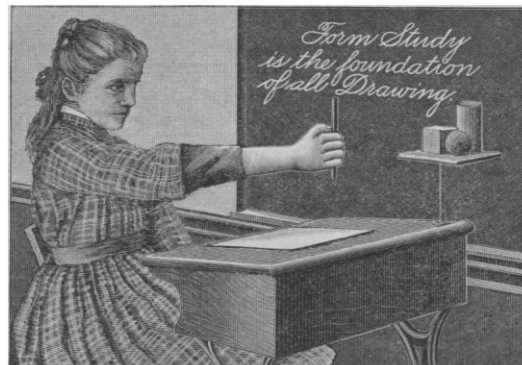


FIG. 3.

the pursuit of this study, which is equally urgent with the demand that they shall be supplied with conveniences for writing. The support for drawing-models shown in the illustration can be readily adjusted, and easily removed from the desk at pleasure. The wooden table on which the models rest, within easy reach of the pupil sitting at the desk, is supported by a wooden rod, which passes through a hole in the top of the desk, and also through the shelf underneath. A metallic cam attached to the top of the desk, at the corner opposite the ink-well, holds the rod and the table at any desired height. The table can quickly be removed from the rod, and may be placed in the desk, or collected with those from the other desks, and kept in a suitable cupboard when not in use. The rod is then dropped to the level of the desk-top, so that nothing is seen above the desk.

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CALENDAR OF SOCIETIES.

Philosophical Society, Washington.

Feb. 15.—Gardiner G. Hubbard, An Account of Stanley's Discoveries in Africa; C. D. Walcott, A Study in Structural Geology.

Appalachian Mountain Club, Boston.

Feb. 14.—F. H. Chapin, Climbs in the Cañon of the Rio Mancos, Col.: A Visit to the Homes of the Cliff-Dwellers.

Boston Society of Natural History.

Feb. 19.—Samuel Garman, Some Recent Discoveries in Caves; W. O. Crosby, A Large Granite Boulder in Madison, N.H., and The Occurrence of Decomposed Granite in Blandford, Mass.

Publications received at Editor's Office,
Jan. 27-Feb. 15.

- ASTRONOMICAL Observatory of Harvard College, Annals of the. Vol. XXI. Part I. Observations of the New England Meteorological Society in the Year 1888. Cambridge, W. H. Wheeler, pr. 105 p. 4^c.
- Same. Vol. XXII. Meteorological Observations made on the Summit of Pike's Peak, Colorado. . . . January, 1874, to June, 1888. Cambridge, John Wilson & Son. 475 p. 4^c.
- BALL, R. S. Time and Tide, A Romance of the Moon. London, Society for promoting Christian Knowledge; New York, E. & J. B. Young & Co. 192 p. 16^c. \$1.
- BRAY, H. T. The Evolution of a Life; or, From the Bondage of Superstition to the Freedom of Reason. Chicago, Holt Publ. Co. 436 p. 12^c. \$2.
- CLUTTERBUCK, W. J. The Skipper in Arctic Seas. London and New York, Longmans, Green, & Co. 271 p. 12^c. \$2.25.
- CRAWLEY, E. S. Elements of Plane and Spherical Trigonometry. Philadelphia, Lippincott. 159 p. 12^c. \$1.
- DAVIS, E. H. The Third Reading-Book. Philadelphia, Lippincott. 336 p. 12^c. 56 cents.
- GOODWIN, W. W. Syntax of the Moods and Tenses of the Greek Verb. Boston, Ginn. 464 p. 8^c. \$2.15.
- HALL, I. F. The Riverside Manual for Teachers. (Riverside Literature Series, extra No.) Boston and New York, Houghton, Mifflin, & Co. 16^c. 15 cents.
- NORTON, C. L. A Handbook of Florida. Part I. The Atlantic Coast. New York, Longmans, Green, & Co. 240 p. 16^c. 50 cents.
- PHYSICAL TRAINING Conference, a Full Report of the Papers and Discussions of the, held in Boston in November, 1889. Ed. by Isabel C. Barrows. Boston, G. H. Ellis. 135 p. 8^c.
- SALOMONS, D. Electric Light Installations and the Management of Accumulators. New ed. London, Whittaker & Co.; New York, Van Nostrand. 394 p. 12^c. \$1.50.
- SCHENCK, F. S. The Ten Commandments in the Nineteenth Century. New York and London, Funk & Wagnalls. 139 p. 12^c.
- SICKELS, I. Exercises in Wood-Working, with a Short Treatise on Wood. New York, Appleton. 158 p. 8^c.
- THURSTON, R. H. A Handbook of Engine and Boiler Trials, and of the Indicator and Prony Brake. New York, Wiley. 514 p. 8^c. \$5.
- TIDY, C. M. The Story of a Tinder-Box. London, Society for promoting Christian Knowledge; New York, E. & J. B. Young & Co. 105 p. 16^c. 80 cents.

Exchanges.

[Free of charge to all, if of satisfactory character. Address N. D. C. Hodges, 47 Lafayette Place, New York.]

I have a number of duplicates of microscopic slides, mostly botanical, which I would like to exchange for others not now in my collection. Send list of what you have to exchange and get my list. S. R. Thompson, New Wilmington, Pa.

Correspondence and exchanges solicited with persons interested in the study of American and Mexican antiquities. L. W. Gunckel, 36 Elm St., New Haven, Conn.

I wish to exchange or purchase well-fixed or hardened vertebrate embryos for sectioning. Desire specially reptilian embryos, but will be glad to secure any material that I do not possess. Thomas G. Lee, M.D., Histological Laboratory, Yale University, New Haven, Conn.

Wanted—Books and journals, American or foreign, relating to Philadelphia, exchange or purchase. C. W. Canfield, 135 1 Broadway, New York.

Wanted.—Marine univalves of the west coast, from U. S. line southward, and from Pacific Islands, offered; exchange from a general collection. — F. C. Browne, Framingham, Mass., Box 30.

D. E. Willard, Curator of the Museum, Albion Academy, Albion, Wis., will answer all his correspondence as soon as possible. Sickness and death in the family, with many other matters, have prevented his answering as promptly as he should have done.

I will give 100 good arrow heads for a fine pair of wild cattle horns at least two feet long. If you have shorter or other horns write me, and also how many arrow heads you want for them. I will also exchange shells, minerals and arrows. W. F. Lerch, 308 East 4th St., Davenport, Iowa.

A few duplicates of *Murex radix*, *M. ramosus*, *M. brandaris*, *Cassia rufa*, *Harpa ventricosa*, *Oliva triatula*, *O. reticularis*, *Chlorostoma funebre*, *Cypraea caput serpentis*, *C. lynx*, *Lottia gigantea*, *Acmodonta patina*, *Chama spinosa*, and some thirty other species, for exchange for shells not in our collection. List on application. — Curator Museum, Polytechnic Society, Louisville, Ky.

Photographs and Stereoscopic views of Aborigines of any country, and fine landscapes, etc., wanted in exchange for minerals and fossils. — L. L. Lewis, Copenhagen, New York.

Droysen's *Allgemeiner Historischer Hand-atlas* (Leipzig, 1886,) for scientific books — those published in the *International Scientific Series* preferred. — James H. Stoller, Schenectady, N.Y.

Astronomical works and reports wanted in exchange or to buy. Reports of observations on the planet Neptune and its satellite specially desired. — Edmund J. Sheridan, B.A., 295 Adelphi St., Brooklyn, N.Y.

I would like to correspond with any person having Tryon's "Structural and Systematic Conchology" to dispose of. I wish also to obtain State or U.S. Reports on Geology, Conchology, and Archaeology. I will exchange classified specimens or pay cash. Also wanted a copy of MacFarlane's "Geologists' Traveling Hand-Book and Geological Railway Guide." — D. E. Willard, Curator of Museum, Albion Academy, Albion, Wis.

Morris's "British Butterflies," Morris's "Nests and Eggs of British Birds," Bree's "Birds of Europe" (all colored plates), and other natural history, in exchange for Shakesperiana; either books, pamphlets, engravings, or cuttings. — J. D. Barnett, Box 735, Stratford, Canada.

I have *Anodonta opalina* (Weatherby), and many other species of shells from the noted Koskonong Lake and vicinity, also from Western New York, and fossils from the Marine strata of New York, which I would be glad to exchange for specimens of scientific value of any kind. I would also like to correspond with persons interested in the collection, sale, or exchange of Indian relics. — D. E. Willard, Albion Academy, Albion, Wis.

Shells and curiosities for marine shells, curiosities or minerals address W. F. Lerch, No. 308 East Fourth St., Davenport, Iowa.

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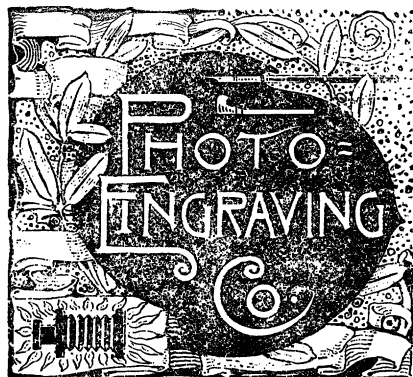
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